CITOTOXICITY AND CELL CYCLE EFFECTS OF AMBLYOMIN-X IN CULTURED CANCER CELLS .

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Several studies have demonstrated that saliva of haematophagous encompasses substances which interfere in the blood coagulation of their hosts. Focusing this system, a recombinant Factor Xa inhibitor (named Amblyomin-X) was cloned and expressed. Besides its anticoagulant effect, the recombinant protein presents citotoxicity on several tumor cell lines. The aim of this study is to treat (HUVECs, B16F10, SKmel-28 and K562 cell lines) with the inhibitor and to evaluate the treatment interference in the phases of cell cycle. To perform the experiments the cultured cells were treated with different Amblyomin-X concentrations. Cytological alterations were analyzed by inverse microscopy, cell viability by flow cytometry and MTT methods, and cell cycle phase by flow cytometry. The obtained data showed that Amblyomin-X induces cytotoxicity in a dose dependent manner in B16F10 and Skmel (melanoma cells), on other hand no effects were observed in K562 (leukemia cells). These data suggests that Amblyomin-X seems to be more effective on tested adherent tumor cells (mouse and human melanoma). The flow cytometry results demonstrated significantly increase in G2/M in all tested tumor cells but not on normal HUVECs demonstrating the selective anti-proliferative effect. Melanoma cells are rich sources of procoagulants such as CP (FX activator) and Tissue Factor. Beyond the procoagulant activity, these proteins can also interfere with cell behavior. Though, we believe that it is possible that Amblyomin-X causes the disruption of a positive feed-back elicited by cancer procoagulant proteins on cancer cells itself.

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